

Applic. No. 10/650,051
Amdt. dated September 27, 2007
Reply to Office action of July 17, 2007

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Claim Amendments

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): An apparatus for detecting a material of a surface of a flat object on a stack of flat objects, the flat objects being printing plates, separated by interlayers in the stack, the apparatus comprising:

a sensor apparatus containing a sensor carrier, sensor electronics, and sensor electrodes resting on the surface of the flat object and conducting a measuring current through the surface of the flat object, said sensor carrier supporting said sensor electrodes, and said sensor electronics connected to said sensor electrodes; and

said sensor electronics having an evaluation device configured for distinguishing between an exposure layer of the printing plates, the interlayers, and a rear of the printing plates.

Claim 2 (original): The apparatus according to claim 1, wherein an electrical resistance in the surface of the flat object is measured with the measuring current.

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Claim 3 (previously presented): The apparatus according to claim 1, wherein said sensor electronics contain a frequency generator connected to said sensor electrodes, a rectifier connected to said sensor electrodes, a measurement amplifier connected to said rectifier, comparators connected to said measurement amplifier, and said evaluation unit connected to said comparators.

Claim 4 (previously presented): The apparatus according to claim 1, wherein said sensor electronics contain a controllable-frequency frequency generator connected to said sensor electrodes, a rectifier connected to said sensor electrodes, a measurement amplifier connected to said rectifier, an analog-digital converter connected to said measurement amplifier, and said evaluation unit is a control and evaluation unit connected to said analog-digital converter.

Claim 5 (original): The apparatus according to claim 3, wherein said sensor electronics has a short-circuit detector connected to said sensor electrodes.

Claim 6 (previously presented): The apparatus according to claim 1, wherein said sensor apparatus detects a surface type

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of the surface of the flat object as being one of paper, an exposure layer of the printing plate, metal and 'no object'.

Claim 7 (original): The apparatus according to claim 1, further comprising a loading device for printing plates, and said sensor apparatus is integrated into said loading device.

Claim 8 (original): The apparatus according to claim 7, further comprising a lifting device having suction elements for gripping the printing plates, said sensor apparatus being integrated into said lifting device.

Claim 9 (original): The apparatus according to claim 4, wherein said sensor electronics has a short-circuit detector connected to said sensor electrodes.

Claims 10 and 11 (cancelled).

Claim 12 (previously presented): A method for detecting a material of a surface of a flat object on a stack of flat objects, the flat object being printing plates, which are separated by interlayers, the method which comprises the steps of:

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using sensor electrodes resting on the surface of the flat object and connected to sensor electronics for conducting a measuring current through the surface of the flat object; and

distinguishing between an exposure layer of the printing plates, the interlayers, and a rear of the printing plates before providing the printing plates for further processing.

Claim 13 (original): The method according to claim 12, which further comprises generating the measuring current with a frequency generator, and the frequency generator applying a high-frequency voltage to the sensor electrodes.

Claim 14 (original): The method according to claim 12, which further comprises using the measuring current for measuring an electrical resistance of the surface of the flat object.

Claim 15 (original): The method according to claim 12, which further comprises:

converting the measuring current into a measuring voltage; and recognizing the material forming the surface from a voltage range in which the measuring voltage lies.

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Claim 16 (previously presented): The method according to claim 12, which further comprises:

varying a frequency of the measuring current using a controllable frequency generator; and

carrying out a plurality of measurements at different frequencies; and

distinguishing a surface material by depending on the frequency of the voltage which is applied to the sensor electrodes.

Claim 17 (original): The method according to claim 16, which further comprises evaluating measuring voltages determined from the plurality of measurements to detect the material of the surface.

Claim 18 (original): The method according to claim 12, which further comprises determining the surface to be a surface type selected from the group consisting of paper, an exposure layer of a printing plate, metal, and 'no object'.

Claim 19-20 (cancelled).

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Claim 21 (new): An apparatus for detecting a material of a surface of a flat object on a stack of flat objects, the flat objects being printing plates, separated by interlayers in the stack, the apparatus comprising:

a sensor apparatus containing a sensor carrier, sensor electronics, and sensor electrodes resting on the surface of the flat object and conducting a measuring current through the surface of the flat object, said sensor carrier supporting said sensor electrodes, and said sensor electronics connected to said sensor electrodes; and

said sensor electronics having a controllable frequency generator varying a frequency of the measuring current applied to said sensor electrodes for carrying out a plurality of measurements at different frequencies and said sensor electronics having an evaluation device for distinguishing between an exposure layer of the printing plates, the interlayers, and a rear of the printing plates by distinguishing a surface material by evaluating measuring voltages determined from the plurality of measurements and depending on the frequency of the voltage which is applied to said sensor electrodes.